

AB, E.A.; ANDRIANOVA, G.M.; PLOINIKOV, R.I.; KHUTSISHVILI, L.A.

Universal accelerating tube. Vop. rad. geofiz. no. 5:140-
141 '65. (MIRA 18:9)

AB, E.A.; LEVITIN, A.I.; PLOTNIKOV, R.I.

Temperature quenching of the luminescence of oil. Geofiz. prib. no.20:
97-98 '64. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut razvedochnoy geo-
fiziki.

AB, E.A.; ANDRIANOVA, G.M.; PLOTNIKOV, R.I.; KHUTSISHVILI, L.A.

Portable accelerating tube with an ion source for neutron generators. Prib. i tekhn. eksp. 6 no.1:129-130 Ja-F '61.

(MIRA 14:9)

1. Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta geofizicheskikh metodov razvedki.

(Particle accelerators)

20702

21.2100

S/120/61/000/001/040/062
EO32/E114

AUTHORS: Ab, E.A., Andrianova, G.M., Plotnikov, R.I.. and Khutsishvili, L.A.

TITLE: A Portable Accelerating Tube Incorporating an Ion Source for a Neutron Generator

PERIODICAL: Pribery i tekhnika eksperimenta, 1961, No.1, pp 129-130

TEXT: The accelerating tube has been developed for a small-size neutron generator which will replace the Po-Be neutron source used in oil and gas well sampling by the Leningradskiy filial, Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki (Leningrad Branch, All-Union Scientific Research Institute of Geophysical Exploration Methods). The accelerating tube is illustrated schematically in the figure. The neutrons are produced as a result of the D + T reaction. accelerated deuteron ions bombard a zirconium-tritium target of a standard type. In order to maintain the pressure in the tube at the required level, a system of getters and pumps is employed. The ion tube is of the arc type and consists of a cylindrical anode and two disc cathodes. The cathode facing the target has Card 1/4

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EO32/E114

A Portable Accelerating Tube Incorporating an Ion Source for a Neutron Generator

an aperture through which positive ions are extracted. The magnetic field which is necessary to focus the ionizing electrons can be produced either by a permanent magnet or a solenoid. If a steel body is used, an electromagnet is preferable. A target is located in a massive copper holder so that the instrument can be used without forced cooling for a minimum of 5 to 6 hours. A special electrode in the form of a truncated cone is mounted on the target holder and prevents the occurrence of an avalanche discharge. The negative potential of this electrode is obtained by means of a bias resistor. The deuterium is stored in a special getter as indicated. The getter is made of titanium, or a mixture of zirconium and titanium. The deuterium is re-emitted when the getter is heated. It is re-absorbed when the getter is cooled down. The tube has the following characteristics: length 350-400 mm, diameter 35-40 mm, weight 500 g, maximum external pressure 15 atm, deuterium-store heating current 0.3-0.8 A, anode voltage in the ion gun

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EO32/E114

A Portable Accelerating Tube Incorporating an Ion Source for a Neutron Generator

400 to 1000 V, magnetic field strength 600 oe, maximum accelerating voltage 70-110 kV. Three times as many neutrons can be obtained with this tube as with a Po-Be source. With a current at the target of 80 μ A, and an accelerating voltage of 110 kV, the neutron yield was 450 curie ($\pm$ 30%).

There is 1 figure.

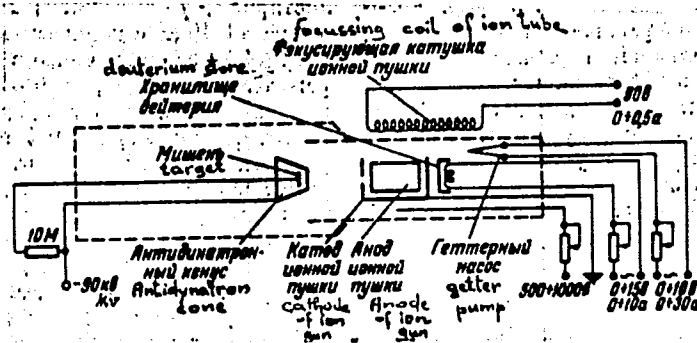
ASSOCIATION: Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta geofizicheskikh metodov razvedki
(Leningrad Branch, All-Union Scientific Research Institute of Geophysical Exploration Methods)

SUBMITTED: February 13, 1960

Card 3/4

A Portable Accelerating Tube

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S/120/61/000/001/040/062
E032/E114



Card 4/4

Figure

AB, E.A.; ANDRIANOVA, G.M.; PLOTNIKOV, R.I.; KHUTSISHVILI, L.A.

Portable X-ray tubes for geophysical apparatus. Vop.rud.geofiz. no.4:
130-133 '64. (MIRA 18:1)

AB, E.A.; LEVITIN, A.I.; ORLOVA, L.B.; PLOTNIKOV, R.I.

Apparatus for luminescence logging of oil wells from drilling fluid
coming out. Prikl. geofiz. no.37:183-194 '63. (MIRA 16:10)

ABE, E.A.; ZAPOROZHETS, V.M.; PLOTNIKOV, R.I.; KHUTSISHVILI, L.A.

Some problems in the construction of neutron generators for well
logging. Prikl. geofiz. no.23:226-233 '59. (MIRA 13:1)
(Logging (Geology))

L 47099-66 EWT(1)/EWT(m) VW

ACC NR: AR6016491

SOURCE CODE: UR/0272/65/000/012/0108/0108

AUTHOR: Ab, E. A.; Andrianova, G. M.; Plotnikov, R. I.; Khutsishvili, L. A.

TITLE: Special tubes for the portable equipment for x-ray spectral analysis

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika, Abs. 12.32.930

REF SOURCE: Sb. Geofiz. priborostr. Vyp. 22. L., Nedra, 1965, 81-87

TOPIC TAGS: x ray emission, x ray measurement, x ray spectrum, x ray spectroscopy, spectrum analysis, x ray tube, portable x ray equipment

ABSTRACT: The drawbacks and limitations of x-ray radiometric analysis with the use of type T¹⁷⁰ or BaCl¹⁴⁰O₃ γ -quantum isotope sources are pointed out. In developing dispersionless field spectrometers, the use of special x-ray tubes makes it possible to increase emission efficiency considerably, to provide for radiation measurement safety while simplifying protection by the absence of the hard-emission component and to alter the spectral composition of the emission either by replacing the plates or by using secondary emitters. Examples of

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UDC: 389:539.184:537.531:621.386.2

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using tubes with various methods of excitation in assaying rock specimens for zinc and lead are presented. A technical description of BSV-5 and BSV-7 tubes designed for structural analysis is given, and considerations concerning their use in x-ray radiometric analyses are proposed. Basic specifications for special tubes of portable field x-ray radiometric equipment are established, and ways of developing them are outlined. [Translation of abstract] [DW]

SUB CODE: 20, 09, 18/

hs

Card 2/2

ANDREYEV, O.V.; BABKOV, V.F.; ZAMAKHAYEV, M.S.; KRUTITSKIY, Ye.V.;
PLOTNIKOV, S.A., redaktor; GALAKTIONOVA, Ye.N., tekhnicheskii
redaktor

[Exercises for a course in automobile road planning] Uprazhnenia
po kursu proektirovaniia avtomobil'nykh dorog. Moskva, Izd-vo
dorozhno-tekhn. lit-ry Gushosdora MVD SSSR. Pt.2. 1952. 256 p.
[Microfilm] (MLRA 7:10)

1. Moscow. Avtomobil'no-dorozhnyy institut
(Roads--Design)

KAZANSKIY, Konstantin Alekseyevich; PLOTNIKOV, S.A., redaktor; KOGAN, F.L.,
tekhnicheskiiy redaktor

[How highways are planned] Kak proektiruiut avtomobil'nye dorogi.
Moskva, Nauchno-tekhn. izd-vo avtotransportnoi lit-ry, 1954. 57 p.
[Microfilm] (MLRA 8:2)
(Roads)

PLOTNIKOV, S.A.

ANDREYEV, Oleg Vladimirovich; BABKOV, Valeriy Fedorovich; GERBURT-
GEYBOVICH, Andrey Vladimirovich; ZAMAKHAYEV, Mitrofan Semenovich;
KRUTETSKIY, Yevgeniy Vladimirovich; ORNATSKIY, Nikolay Petrovich;
SEDEL'NIKOV, Pavel Ivanovich; SMIRNOV, Andrey Sergeyevich; SHESTAKOV,
P.N. [deceased] PLOTNIKOV, S.A., redaktor; KOGAN, F.L., tekhnicheskiy
redaktor.

[Examples of highway design] Primery proektirovaniya avtomobil'nykh
derog. Izd. 2-e, perer. Moskva, Nauchno-tekhn. izd-vo avtotransp.
lit-ry, 1955. 283 p. (MLRA 8:12)
(Roads)

MAKUNI, Mikhail Antonovich; PLOTNIKOV, S.A., redaktor; GALAKTIONOVA, Ye.N.
tekhnicheskiiy redaktor.

[Stone and its use in road building] Kamen' i ego primeneniye v
dorozhnom stroitel'stve. Moskva, Nauchno-tekhn.izd-vo avto-
transp.lit-ry, 1955. 61 p. (MLRA 8:9)
(Road construction) (Stone)

Plotnikov, P. A.
YUKHIMCHUK, Daniil Filippovich; GRISHKO, N.N., redaktor; PLOTNIKOV, S.A.,
redaktor; GALAKTIONOVA, Ye.N., tekhnicheskiy redaktor

[Roadside improvement with fruit trees] Ozelenenie avtomobil'nykh
dorog plodovymi derev'iami. Pod red. N.N.Grishko. Moskva, Nauchno-
tekhn. izd-vo avtotransp. lit-ry, 1955. 33 p. [Microfilm] (MLRA 10:6)

1. Deystvitel'nyy chlen Akademii nauk USSR (for Grishko)
(Roadside improvement)

ARSEN'YEV, A.A.; PLOTNIKOV, S.A., redaktor; KOGAN, F.L., tekhnicheskii
redaktor

[The experience of leaders in road building] Opyt peredovikov
dorozhnogo stroitel'stva. Pod obshchei red. A.A.Arsen'eva. Moskva,
Nauchno-tekhn. izd-vo avtotransp. lit-ry. No.1. 1956. 82 p.

(MLRA 9:9)

1. Moscow. Gosudarstvennyy vsesoyuznyy dorozhnyy nauchno-issledova-
tel'skiy institut.

(Road construction)

PLOTNIKOV, S.B., inzh.; GOSTEV, K.N., inzh.

Using trucks in transporting sectional pipes. Nov. tekhn.
mont.i spets.rab.v stroi. 21 no.12:25-26 D '59.
(MIRA 13:3)

1. Stroitel'no-montashnyy uchastok - 6 tresta Vostokspets-
neftestroy.
(Pipe, Steel--Transportation)

ПЛОТНИКОВ, С.Б.

PLOTNIKOV, S.B., inzh. (Ufa)

Industrial construction of wells and chambers on water and sewer
lines. Stroi.pred.neft.prom. 2 no.8:24-25 Ag '57. (MIRA 11:1)
(Water--Distribution) (Sewerage)

PLOTNIKOV, S.M.

Activity of the thyroid gland in involutional psychoses. Zhur.
nevr. i psikh. 65 no.4:604-607 '65.

(MIRA 18:5)

1. Kafedra psikhiiatrii (nauchnyy rukovoditel' - prof. A.L. Le-
sichinskiy) Izhevskogo meditsinskogo instituta.

PLOTNIKOV, S.M.

Letter to the editor. Zhur.nevr. i psikh. 59 no.8:1022-1023 '59.

(SCHIZOPHRENIA)

(MIRA 12:12)

SHTeyNBERG, D.S., otv. red.; IGUMNOV, A.N., red.; PLOTNIKOV, S.N., red.;
SOBOLEV, I.D., red.; FAVORSKAYA, A.P., red. izd-va; SEREDKINA,
N.F., tekhn. red.

[Guidebook for the Sverdlovsk excursion] Putevoditel' Sverdlov-
skoi ekskursii. Sverdlovsk, 1961. 135 p. (MIRA 14:8)

1. Ural'skoye petrograficheskoye soveshchaniye, 1st.
(Sverdlovsk region—Geology—Field work)

BABKOV, V.F., professor, doktor tekhnicheskikh nauk; PLOTNIKOV, S.S.,
redaktor; MAL'KOVA, N.V., tekhnicheskiiy redaktor

[Highways] Avtomobil'nye dorogi. Moskva, Nauchno-tekhn. izd-vo
avtotransportnoi lit-ry, 1954. 175 p. (MLRA 8:1)
(Roads)

PLOTNIKOV, T.F.

New design of shells for trenchless pipelaying. Stroi. truboprov. 8 no.9:27 S '63. (MIRA 16:11)

1. Brigadir slesarey-montazhnikov Stroitel'no-montazhnogo upravleniya No.10 tresta Ukgazneftestroy, Odessa.

40
Plotnikov, T. P.

SHUIKH, N.I., TIMOFEEVA, YE.A., PLOTNIKOV, T.P., DOSKININA, T.P.
PETRYAYEVA, G.S.

Catalytic dehydrogenation of methylpentanes and a 2,3-dimethylbutane.

Report presented at the 12th Conference on high molecular weights compounds, devoted to monomers, Baku, 3-7 April 62.

I. 09318-67 EWT(m) DJ

ACC NR: AP6028055

(N)

SOURCE CODE: UR/0310/66/000/005/0032/0033

AUTHOR: Korabel'shchikov, N. (Candidate of technical sciences); Plotnikov, V. (Engineer)

ORG: None

32

TITLE: Purification of heavy fuel oil //

SOURCE: Rechnoy transport, no. 5, 1966, 32-33

TOPIC TAGS: marine engineering, diesel engine, diesel fuel, fuel oil, fuel refining /
DT-1 fuel oil, 4Ch17.5-24 diesel engine

ABSTRACT: The authors describe a method proposed for purification of heavy oils of DT-1 trademark used for marine diesel engines by the Irtysh Steamship Agency. The method is proposed on the basis of the experiments conducted by the authors with a 100-hp, 750-rpm diesel engine of 4Ch17.5/24 type. The investigated DT-1 fuel had a viscosity of 2.1 degrees Engler at 50 C and contained 0.1% of solid residues, 0.06% of water and 2.5% of sulfur. A special system shown in a diagram was used for straining the fuel through a filter, for running it through a centrifuge and for separating impurities in a separator. The results of experimental filtering, centrifuging and separating are summed up in a table. The oil was preheated before testing by means of an electric heater placed in the oil tank. The influence of temperature on the elimination of solid residues is plotted in curves for three types of purification. In conclusion, a following method of purification is proposed.

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ACC NR: AP6028055

tion is proposed. First, the oil is clarified by settling in fuel tanks at temperatures of 40 to 50 C. Then, water and residues are separated in a separator. Finally, a further elimination of solid particles takes place in a centrifuge. A temperature of 60 to 70 C is recommended for separators and centrifuges. Orig. art. has: 2 diagrams, 1 table.

SUB CODE: a1, 13/ SUBM DATE: None

Cord 2/21

PLOTNIKOV, V.

Phylloxera. Zashch. rast. ot vred. i bol. 10 no.8:34-37
'65. (MIRA 18:11)

1. Starshiy agronom Gosudarstvennoy inspektsii po
karantinu i zashchite rasteniy Ministerstva sel'skogo
khozyaystva SSSR.

PLOTNIKOV, V.; KAPLUNENKO, B.

"Mikro" transistor radio, receiver. Radio no. 7:29-30 J1 '63.
(MIRA 16:7)

(Transistor radios)

NEEESNOV, V.I.; PLOTNIKOV, V.A.

Electric modeling of conditions of the simultaneous operation of
ship hulls, propellers, and engines. Sudorem. i sudostr. no.2:
126-140 '63. (MIRA 17:4)

1. Odesskiy institut inzhenerov morskogo flota.

PLOTNIKOV, V.

PLOTNIKOV, V.- "Fattening Properties of Pigs of the Dobrinskiy Breed Group as a function of the Feed-ration Mixture." All-Union Sci Res Inst of Husbandry, Division of Pig Husbandry, Saratov, 1955 (Dissertations for Degree of Candidate of Agricultural Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

AUTHOR: Plotnikov, V. SOV-107-58-9-34/38

TITLE: A Pocket Receiver (Karmanny radiopriyemnik)

PERIODICAL: Radio, 1958, Nr 9, p 53 (USSR)

ABSTRACT: The receiver is a 2-V-3 straight amplification set using junction-type transistor triodes and a germanium diode for the detector. It picks up stations between 700 and 1,800 ~~M~~ on a built-in ferrite antenna. Power is supplied from 3 cells of an FBS-0.25 battery and a microphone in-set used for the loudspeaker. Miniature components are used throughout, and the dimensions of the plastic case in which the receiver is assembled are 28 x 63 x 100 mm.

1. Radio receivers--Design 2. Transistors--Applications

Card 1/1

PLOTNIKOV, V.

7653. PLOTNIKOV, V. -- Opyt ritmichnoy raboty zavoda. (sverdl. zavod transp. mashinostroyeniya). moskva-sverdlovsk, mashgiz, (uralo- sib. otd-niye), 1954. 36 s. s chert. 20 sm. (obmen tekhn. opytom). 2.500 ekz. 1R. -- (55-3216)P

621.80:658.513

Plotnikov, V. Velikaya sila. (o rabote part. organizatsii zavoda pod'yemno-transp. oborudovaniya im. s. m. Korova po rukovodstvu sots. sorevnovaniyem). --sm. 7337

SO: Knizhnaya Letopsis', Vol. 7, 1955

PLOTNIKOV, V., inzh.

Repairing ball joints of reactive rods. Avt.transp. 39
no.10:30 0 '61. (MIRA 14:10)
(Machine-shop practice)

PLOTNIKOV, V.

Pocket radio with straight amplification. Radio no.10:41-43
0 '62. (MIRA 15:10)

(Transistor radios)

YLOINIKOV, V.A.

5(1,4)

P.2

PHASE I BOOK EXPLOITATION

SOV/3413

Akademiya nauk Ukrainskoy SSR. Institut obshchey i neorganicheskoy khimii

Raboty po khimii rastvorov i kompleksnykh soyedineniy, vyp. 2
(Papers on the Chemistry of Solutions and Complex Compounds,
Nr 2) Kiyev, 1959. 229 p. Errata slip inserted, 2,000
copies printed.

Resp. Ed.: Ya.A. Fialkov (Deceased) Corresponding Member,
Ukrainian SSR, Academy of Sciences; Ed. of Publishing House:
Z.S. Pokrovskaya; Tech. Ed.: M.I. Yefimova.

PURPOSE: This book is intended for research scientists, teachers in schools of higher education and technical schools, aspirants, and students of advanced chemistry courses.

COVERAGE: The collection contains 9 articles which review work conducted at the Institute for General and Inorganic Chemistry, Ukrainian Academy of Sciences, on electrolytic aqueous and nonaqueous solutions, the chemistry of complex compounds,

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Papers on the Chemistry (Cont.)

SOV/3413

analytical chemistry, and fused electrolytes. The collection also contains an article entitled "Electrochemical Properties of Aluminum Halides in Nonaqueous Solutions", by V.A. Plotnikov (Deceased). Figures, tables and references accompany each article. No personalities are mentioned.

TABLE OF CONTENTS:

Plotnikov, V.A. Electrochemical Properties of Aluminum Halides in Nonaqueous Solutions	3
Yakubson, S.I. Dependence of Decomposition Potentials of Compounds of Aluminum Bromide With Metal Halides in Nonaqueous Solutions as a Function of Concentration	72
Fialkov, Ya.A. (Deceased), and Ya.B. Bur'yanov. Phosphorous Pentoxide As a Complex-forming Agent in Reactions With Metal Chlorides	82
Fialkov, Ya.A. and Yu.P. Nazarenko. Study of Inorganic Halides on the Basis of Isotope Exchange Reactions	116

Card 2/3

PLOTNIKOV, V. A. Cand Tech Sci -- (diss) ^{Development} ~~Study~~ of the theory and methods
of calculation of networks of synchronized broadcasting stations." Mos, 1958.
20 pp (Acad Sci USSR. Inst of Radio Engineering and Electronics), 130 copies.
(KL, 13-58, 97)

-68-

L 05697-67 EWT(d)/EWT(1) LJP(c) WJ
ACC NR: AP6011364

SOURCE CODE: UR/0208/66/006/002/0386/0389

AUTHOR: Klikh, Yu. A. (Odessa); Makarov, O. F. (Odessa); Plotnikov, V. A. (Odessa)

ORG: none

TITLE: The use of an analog computer to calculate the initial conditions for a system in an optimal motion control problem *a*

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 6, no. 2, 1966, 386-389

TOPIC TAGS: optimal control, optimal automatic control, time optimal control, control theory, motion equation, analog computer, computer application, computer simulation

ABSTRACT: The authors describe analog computer simulation of a simple motion equation with the objective of finding the optimum control parameters of a system. The work was designed to prove the feasibility of using analog computers in the solution of optimization problems of this type. Consider the motion of a point *m* (figure 1) in a force field. The point is acted upon by the field and by a constant magnitude pulling force. The equation of motion may be written as

$$\ddot{r} = -\frac{1}{r^2} + a$$

UDC: 518.51:62-50

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ACC NR: AP6011364

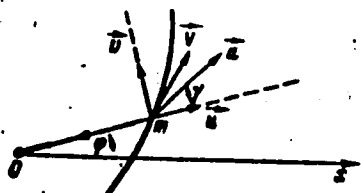


Fig. 1.

or in the radial and transverse projections as

$$\dot{r} = u, \quad \dot{\phi} = \frac{v}{r}, \quad \ddot{r} = \frac{v^2}{r} - \frac{1}{r^3} + a \cos \gamma, \quad \ddot{\phi} = -\frac{uv}{r^2} + a \sin \gamma, \quad (1)$$

where r is the polar radius of the point, ϕ is the polar angle, a is the pulling force modulus, u and v are radial and transverse velocity components and γ is the angle formed by the direction of the pulling force and the polar radius. The problem is to find an optimum control $\gamma = \gamma(t)$ which will transfer the point m in a minimum of time from the position

r_0, ϕ_0, u_0, v_0 where $t = 0$

into position

r_A, ϕ_A, u_A, v_A where $t = t_A$

Applying Pontryagin's maximum principle, this problem can be reduced to the solution

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ACC NR: AP6011364

of a two-point boundary problem. Since the system (1) is unstable in this particular case, to ensure the stability of the system simulated on the analog computer, the original system (1) is transformed by substitution of

$$\rho = \frac{1}{r}, \quad s = \frac{d\rho}{d\varphi}, \quad \omega = \frac{1}{r^2 \varphi^2}$$

into

$$\rho' = s, \quad s' = \omega - \rho - \frac{as \cos \gamma}{\rho^2} - \frac{as \sin \gamma}{\rho^2}, \quad \omega' = -2 \frac{a \omega^2 \sin \gamma}{\rho^2}$$

Hence the problem amounts to finding of optimal control, which transfers the point m from the position ρ_0, s_0, ω_0 where $\varphi = 0$

for $\varphi=0$ into position

$$\rho_A, s_A, \omega_A \quad \text{where} \quad \varphi = \varphi_A$$

and the minimizing functional

$$I = \int_0^{\varphi_A} \frac{\gamma \omega}{\rho^2} d\varphi$$

The authors set up the necessary equations and provide a block diagram for system simulation on an analog computer. The feasibility of solving problems of this type on an analog computer is proven and an example is included. Orig. art. has: 10 formulas, 3 figures.

SUB CODE: 09,13/ SUBM DATE: 29Mar65

Card 3/3

ACC NR: AP6035902

(A)

SOURCE CODE: UR/0413/66/0 0/020/0142/0142

INVENTOR: Vasil'yev, Yu. N.; Koregin, V. I.; Savrasov, Yu. A.; Urlov, A. Ya.; Plotnikov, V. A.

ORG: none

TITLE: Stand for testing tractors. Class 42, No. 187371 [announced by the Chelyabinsk Branch of the State Union Scientific-Research Tractor Institute (Chelyabinskiy filial gosudarstvennogo soyuznogo nauchno-issledovatel'skogo traktornogo instituta)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 142

TOPIC TAGS: tracked vehicle, tractor, tractor maintenance, tractor test stand, test stand, test method

ABSTRACT" An Author Certificate has been issued for a stand for testing tractors, which includes a frame, braking units, rails, a wheeled carriage with supports, and tension members. In order to decrease carriage vibration and noise during the tractor tests, the axles of the carriage wheels, which are mounted in stirrups, are articulately fastened to the frame; at the other end they are connected by a nut which interacts with the supporting screw. In a variant, on the lower part of the carriage frame are mounted female guide rails and fixing brackets with clamping screws. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 29Oct65/

Card 1/1

UDC: 629.114.2: 620.178.051

PLOTNIKOV, V.G.

Justification of neglecting overlapping integrals in calculating
molecular systems. Izv. vys. ucheb. zed.; fiz. 8 no.3:163-164 '65.
(MIRA 18:9)

1. Sibirskiy fiziko-tekhnicheskii institut imeni V.D.Koznetsova.

L 31504-66 EWI(1)/EWI(m)/EWP(j) IJP(c) RM
 ACC NR: AP6013020 SOURCE CODE: UR/0051/66/020/004/0589/0593
 AUTHOR: Plotnikov, V. G. 33
 ORG: none 32
 TITLE: Relative locations of the ($\pi\pi^*$) and ($n\pi^*$) states of molecules and their 7
 optical properties. I. Influence of the length of the chain of conjugate bonds
 on the relative position of the ($n\pi^*$) and ($\pi\pi^*$) states B
 SOURCE: Optika i spektroskopiya, v. 20, no. 4, 1966, 589-593
 TOPIC TAGS: excited state, ground state, molecular spectrum, conjugate bond sys-
 tem, molecular orbital
 ABSTRACT: The author investigates the dependence of the relative position of the
 ($\pi\pi^*$) and ($n\pi^*$) excited states (relative to the energy of the ground state of the
 molecules) in molecules with conjugate bonds, as a function of the length of the
 conjugate-bond chain. The analysis is confined to a molecule of the type
 $R=CH-(CH=CH)_m$, containing a certain atom with n-electrons (such as oxygen or NH)
 and a chain of conjugate bonds. An approximate molecular-orbital method is used
 for the calculations. It is shown that the luminescence properties of such
 molecules depend on the length of the chain. If the chain is sufficiently long,

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UDC: 539.194

L 31504-66

ACC NR: AP6013020

the order of the arrangement of the $(\pi\pi^*)$ and $(n\pi^*)$ states may become reversed, and this may make it possible to observe energy migration from the singlet $(n\pi^*)$ state to the singlet $(\pi\pi^*)$ state. The author thanks N. A. Prilezhayeva for a discussion of the results. Orig. art. has: 1 figure and 18 formulas.

SUB CODE: 20/ SUBM DATE: 15Jan65/ ORIG REF: 010/ OTH REF: 012

Card 2/2 mc

PLOTNIKOV, V.G.; DANILOVA, V.I.; SHIGORIN, D.N.; TERPUGOVA, A.F.;
ZUBKOVA, L.B.; FILIPPOVA, L.G.

Theoretical study of the spectral behavior of systems with
a quasi-aromatic cycle. Zhur. fiz. khim. 39 no.9:2311-2312
S '65. (MIRA 18:10)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya
AN SSSR.

L 39710-66 EWP(j)/ENT(1)/ENT(m)/T IJP(c) GG/RM/JW/GD-2
 SOURCE CODE: UR/0139/66/000/001/0107/0110

ACC NR: AF6008113

AUTHOR: Plotnikov, V. G.

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov (Sibirskiy fiziko-
 tekhnicheskiy institut)

TITLE: Quantum mechanical calculation of molecules. Theory of generalized com-
 bined orbits

SOURCE: IVUZ. Fizika, no. 1, 1966, 107-110

TOPIC TAGS: molecular property, crystal property, benzene, nitrobenzene

ABSTRACT: To get around some of the difficulties involved in the use of the mole-
 cular orbital method in the form of a linear combination of atomic orbitals with
 variable coefficients, the author makes use of the method of combined orbitals,
 proposed by P. O. Lowdin (J. Chem. Phys. v. 19, 1470, 1951) for the calculation of
 the energy of crystals.² This method is modified to be applicable to molecules and
 to accommodate integral equations with more than two kernels. The method is used
 to calculate the molecules of benzene, diphenyl, and nitrobenzene and yields re-
 sults which agree well with experiment. The author thanks N. A. Prilezhayeva, V. I.
 Danilova, and O. A. Ponomarev for numerous discussions, and also I. G. Turovets
 for calculations. Orig. art. has: 1 figure, 13 formulas, and 1 table.

SUB CODE: 20/
 Card 1/1 *gd*

SUBM DATE: 26May64/ ORIG REF: 002/ OTH REF: 008

SUB CODE: 20/ SUBM DATE: 21Sep63/ ORIG REF: 018/ OTH REF: 010
 Card 1/1 *gd* UDC: 541.6+543.42

PLOTNIKOV, V.G.; SHIGORIN, D.N.

Role of π -electrons in the formation of hydrogen bonding.
Zhur. fiz. khim. 39 no.10:2608-2611 0 '65. (MIRA 18:12)

1. Fiziko-khimicheskiy institut imeni Karpova, Moskva i
Sibirskiy fiziko-tekhnicheskiy institut imeni Kuznetsova.
Submitted September 10, 1964.

PLOTNIKOV, V.G.

Spatial configuration of nitromethane. Zhur. strukt. khim.
5 no.4:659 Ag '64. (MIRA 18:3)

1. Sibirskiy fiziko-tekhnicheskii institut pri Tomskom
gosudarstvennom universitete.

PLOTNIKOV, V.G., inzh.

Contactless electromagnetic clutch. Vest. sviazi 25 no.3:10-11
Mr '65. (MIRA 18:5)

L 51311-65

ACCESSION NR: AP5009022

S/0111/65/000/003/0010/0011

AUTHOR: Plotnikov, V. G. (Engineer)

TITLE: Contactless electromagnetic clutch

SOURCE: Vestnik svyazi, no. 3, 1965, 10-11

TOPIC TAGS: clutch, electromagnetic clutch, contactless clutch

ABSTRACT: A new design of a contactless emic brake-clutch intended for tuning mechanisms of radio transmitters is briefly described. The distinguishing features of the new clutch are: the drive friction disk is located outside the magnetic circuit which makes their sizes independent; the engage-disengage disk-and-shaft member is made from a nonmagnetic material which reduces magnetic leakage and clutch size; only one airgap in the magnetic circuit. A model clutch 40-mm diameter and 35-mm long was successfully tested and developed a temperature rise of 40C. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 00

ENGL: 00

SUB CODE: EE, EC

NO REF SOV: 000

OTHER: 000

030
Card 1/1

PLOTNIKOV, V. A.

IC

41716

USSR/Electricity

Jan 1948

Radio Equipment.
Voltage Regulators

PA 41716
"Utilization of a Carbon Regulator RMU-5 for Stabilizing the Filament Voltage Supplied by Generators," V. A. Plotnikov, Engr, 1 p

"Vest Syazl, Elektro-Syazl" No 1 (94)

DC Generators very frequently possesses de-stabilizing factors which cause fluctuations in the generated voltage. Especially important to overcome this unstable characteristic, when these machines are used to supply power to filaments (of tubes, etc.). Discusses carbon regulator developed at one of the broadcasting stations which greatly stabilizes this current and makes

41716

USSR/Electricity (Contd)

Jan 1948

it possible to use DC Generators very effectively for supplying power to filaments.

BOYARSKIY, B.G.; PLOTNIKOV, V.F.; SOBOLEVA-DOKUCHAYEVA, I.I.; TSVETKOVA, N.N.;
ABRAMENKO, V.V.

Information and brief news. Zashch. rast. ot vred. 1 bol. 8.
no.4:56-59 Ap '63. (MIRA 16:10)

(Plants, Protection of)

PLOTNIKOV, V.F.

In the Scientific and Technological Council. Zashch. rast. ot
vred. i bol. 8 no.12:55 D '63. (MIRA 17:3)

1. Starshiy agronom-entomolog Tsentral'noy karantinnoy laboratorii
Ministerstva sel'skogo khozyaystva SSSR.

DANILOVA, V.I.; PLOTNIKOV, V.G.

Nature of $n \rightarrow \pi^*$ -transitions. Opt. i spektr. 17 no.4:
626-628 0 '64. (MIRA 17:12)

PLOTNIKOV, V.G.; SHIGORIN, D.N.

Role of the $n \rightarrow \tilde{n}$ -promotion in the generation of radicals.
Dokl. AN SSSR 160 no.1:166-169. Ja '65.

(MIRA 18:2)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova i Sibirskiy
fiziko-tekhnicheskiy institut im. V.D. Kuznetsova. Submitted
August 18, 1964.

L 25373-65 EWA(k)/EWT(l)/EWT(m)/EPF(c)/EEG(k)-2/ENP(j)/EEG(b)-2/ENP(k)/EMA(m)-2/T
 PC-L/PO-L/PP-L/PR-L/PI-L/PL-L IJP(c)/RPL/ RWH/WG/JW/JHB/RM
 ACCESSION NR: AP5003041 S/0051/65/018/001/0156/0158

AUTHOR: Plotnikov, V. G.; Danilova, V. I.

TITLE: Use of photodissociation processes and complex formation for production of level population inversion

SOURCE: Optika i spektroskopiya, v. 18, no. 1, 1965, 156-158

TOPIC TAGS: photodissociation, complex formation, phenol, aromatic acid, aromatic amine, nitrogen organic compound, frequency shift, absorption band

ABSTRACT: Following up the work by M. G. Kuz'min (DAN SSSR v. 151, 1371, 1963) and A. N. Orayevskiy (ZhETF v. 45, 171, 1963), who showed that population-level inversion can be attained in principle in photochemical and chemical reactions, and pointing out that there are no theoretical and few experimental data on the subject, the authors suggest a theoretical approach, based on simple examples in which they consider electrolytic dissociation of some phenols and aromatic acids, and also complex formation of aromatic amines and nitrogen compounds. An equation is derived for the ratio K^*/K of the equilibrium constants in the excited

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L 25373-65

ACCESSION NR: AP5003041

and ground states, for phenol, orthonitrophenol, benzoic acid and the complexes aniline-nitrobenzine, aniline-trinitrobenzine, trinitrobenzine-p-xylydine, trinitrobenzine-mesidine, and 4,4-dinitrodiphenolbenzidine. In the case of phenol, orthonitrophenol, and benzoic acid, the values of K^*/K are $10^{4.6}$, $10^{5.5}$, and $10^{4.9}$ respectively, so that the condition $K^*/K \geq 10^5$ for level inversion, derived by Orayevskiy, may or may not be satisfied. The values of K^*/K for the complexes are well above this limit. "We thank M. A. Prilepaya and the members of the Spectroscopy Laboratory for a fruitful discussion." Orig. art. has: 6 formulas and 2 tables. [02]

ASSOCIATION: none

SUBMITTED: 26Feb64

ENCL: 00

SUB CODE: OP, G-C

NO REF SOV: 004

OTHER: 007

ATD PRESS: 3182

Card 2/2

PLOTNIKOV, V.G.; MOROZOVA, Yu.P.

Oscillator forces and the polarization of $n - \pi^+$ junctions.
Izv. vys. ucheb. zav.; fiz. 8 no.4:175-176 '65.

(MIRA 18:12)

1. Sibirskiy fiziko-tehnicheskiiy institut imeni V.D. Kuznetsova.
Submitted March 20, 1964.

PLOTNIKOV, V.I.

Clinical picture of human rabies. Sov.med. 22 no.9:136-137 S'58
(MIRA 11:11)

1. Iz kafedry infektsionnykh bolezney (zav. - dotsent L.D. Levina)
Sverdlovskogo meditsinskogo instituta (dir. - prof. A.F. Zverev).
(RABIES, case reports
(Rus))

AUTHOR: Plotnikov, V. I.

SOV/78-3-8-8/48

TITLE: Co-Precipitation of Small Amounts of Selenium With Ferric Hydroxide (Soosazhdeniye malykh kolichestv selena s gidrookis'yu zheleza)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1761-1766 (USSR)

ABSTRACT: This paper describes the investigation of the co-precipitation of selenium with iron-(III)-hydroxide in dependence upon various factors, such as the pH value of the solution, the concentration of the ammonium salts, the concentration of selenium, the amount of ferric hydroxide, the temperature of the solution, the consecutive order of the mixing of components and the length of storage of the solution with ferric hydroxide. For the investigation of the co-precipitation of selenium, radioactive selenium Se^{75} in the form of selenious and selenic acid was used. It was found that the concentration of ammonium nitrate in the range 0,05 - 0,5 N does not affect the co-precipitation of selenium. It becomes evident that selenium is co-precipitated almost perfectly up to pH = 8. With increasing

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Co-precipitation of Small Amounts of Selenium
With Ferric Hydroxide

SOV/78-3-8-8/48

content of selenium in the sample the relative percentage co-precipitation is reduced. With increasing amount of ferric hydroxide the co-precipitation of selenium practically does not change, not even with a tenfold amount of ferric hydroxide. At pH = 8 the amount of the co-precipitated selenium decreases if the temperature increases. Preservation of the precipitate in the solution diminishes the amount of the co-precipitated selenium, since the desorption of selenium increases with an aging of the ferric hydroxide. Tetravalent selenium precipitates more than the hexavalent one. In solutions which contain selenium-(VI), in particular in copper ores, a part of the selenium remains dissolved as Se-(VI). There are 8 figures and 9 references, 9 of which are Soviet.

ASSOCIATION: Vsesoyuznyy gornometallurgicheskii nauchno-issledovatel'skiy institut tsvetnykh metallov (All-Union Mining Metallurgical Scientific Research Institute of Nonferrous Metals)

Card 2/3

PLOTNIKOV, V.I.

~~Effect of corticosteroids in Botkin's disease.~~
Kaz. med. zhur. no.5:43-45 S-0'63 (MIRA 16:12)

1. Kafedra infektsionnykh bolezney (zav. - dotsent med. nauk
A.I.Kortev) Sverdlovskogo meditsinskogo instituta.

SOV/32-24-8-4/43

AUTHOR: Plotnikov, V. I.

TITLE: The Determination of Silver in Alloys by the Method of Radiometric Titration (Opredeleniye serebra v splavakh metodom radiometricheskogo titrovaniya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 8, pp. 927 - 928 (USSR)

ABSTRACT: The possibility of applying the method of radiometric titration to the determination of silver in copper and lead alloys was investigated. The titration equipment was constructed according to a diagram given in the literature. An instrument of the type AC-1 which was connected to a β -1 radiometer was used as an impulse counter. The solution in which the activity was determined had a volume of 25 ml. The titration of the nitric acid solution of silver was carried out using 0,005 N and 0,1 N solutions of hydrochloric acid. The silver isotope Ag^{110} was used as the radioactive indicator. The initial activity did not exceed 2500 impulses per minute. The equivalence point was determined graphically. The results are given in tables. The determinations of silver in solutions

Card 1/2

The Determination of Silver in Alloys by the Method
of Radiometric Titration

SOV/32-24-8-4/43

containing other elements showed that it is necessary
to carry out such titrations in strong acid media with a
concentration of up to 10% HNO_3 . The technical procedure
followed is given. There are 3 tables and 1 reference,
which is Soviet.

ASSOCIATION: Vsesoyuznyy gorno-metallurgicheskiy nauchno-issledovatel'skiy
institut tsvetnykh metallov (All-Union Mining Metallurgical
Research Institute for Nonferrous Metals)

Card 2/2

5(2)

SOV/32-25-6-8/53

AUTHOR: Plotnikov, V. I.

TITLE: Application of Iron Hydroxide for the Separation of Tetra-valent and Hexavalent Selenium (Primeneniye gidrookisi zheleza dlya razdeleniya chetyrekh- i shestivalentnogo selena)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 6, pp 666 - 668 (USSR)

ABSTRACT: A method was introduced, to be applied for the separation of small amounts of selenite- and selenate ions. It is based on the co-precipitation of the selenite ion with iron hydroxide at pH 8.4 - 8.6. Under these conditions the selenate ion is not co-precipitated. The completeness of the precipitation was checked by the aid of Se^{75} , and the activity of the solutions was measured with a counter of the MS-7 type at the radiometer B-2. Two experimental series were carried out - selenic acid was marked in the one, and the selenous acid in the other. In the second experimental series the hydroxide precipitate was solved in nitric acid and the activity was measured after the first precipitation. Measuring results revealed (Table 1) that a second precipitation must

Card 1/2

Application of Iron Hydroxide for the Separation of
Tetravalent and Hexavalent Selenium

SOV/32-25-6-8/53

be carried out by all means, as had been also stated in (Ref 5) concerning the selenium separation from copper. The behavior of Se^{6+} in the separation of the selenite ion with the iron hydroxide precipitate is mentioned (Table 2), and it is stated that also in the second precipitation the selenate ion remains in solution. There are 2 tables and 5 references, 4 of which are Soviet.

ASSOCIATION: Vsesoyuznyy gornometallurgicheskiy nauchno-issledovatel'skiy institut tsvetnykh metallov (All-Union Mining-Metallurgical Scientific Research Institute of Nonferrous Metals)

Card 2/2

PLCTNIKOV, V.I.; ZELENSKAYA, I.I.; USATOVA, I.P.

Rhenium extraction from sulfuric acid solutions by tributyl
phosphate. Sbor.trud. VNIITSVETMET no.9:112-114 '65.
(MIRA 18:11)

PLOTHNIKOV, V.I.; MAKSAI, L.I.

Separating small amounts of rhodium from molybdenum,
tungsten and certain other impurities by the method
of ion exchange chromatography. Sbor.trud. VNIITSVETMET
no.9:115-117 '65. (MIRA 18:11)

TRAPEZNIKOV, N.N.; PLOTNIKOV, V.I.

Unusual localization of chondroblastoma of the bone; a single observation. Vop. onk. 11 no.9:97-99 '65. (MIRA 18:9)

1. Iz I khirurgicheskoy kliniki (zav. - doktor med. nauk B.Ye.Peterson) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR (dir. - deystvitel'nyy chlen AMN SSSR prof. N.M.Blokhin).

PLOTNIKOV, V.I.

Mechanism of anti-inflammatory effects of corticosteroids in epidemic hepatitis. Sov. med. 28 no.3:23-25 Mr '65.

(MIRA 18:10)

1. Kafedra infektsionnykh bolezney (zav. - doktor med. nauk A.I. Korteve) Sverdlovskogo meditsinskogo instituta.

PLOTNIKOV, V.I.

Uniqueness and existence theorems and a priori properties of generalized solutions. Dokl. AN SSSR 165 no.1:33-35 N '65.

(MIRA 18:10)

1. Gor'kovskiy gosudarstvennyy universitet im. N.I.Lobachevskogo.
Submitted March 18, 1965.

L 00971-66

ACCESSION NR: AR5015932

UR/0299/65/000/011/M018/M018
577.99

16
B

SOURCE: Ref. zh. Biologiya. Svochnyy tom, Abs. 11M113

AUTHOR: Plotnikov, V.I.; Sklyarov, P.M.; Eteriya, G.P.

TITLE: Biological and plastic properties of frozen pericardium

CITED SOURCE: Sb. Materialy Vyyezdn. nauchn. sessii N.-1. in-ta klinich. i eksperim. khirurgii MZ RSFSR sovместno so Stavropol'sk. med. in-tom, 1964. Stavropol'-na-Kavkaze, 1964, 59-61

TOPIC TAGS: tissue transplant, thoracic surgery, dog

TRANSLATION: Pericardia of young dogs, killed by electric current, were placed 2 hr after death in a sterile flask filled with No. 199 medium and 10% of homoserum with addition of 1 - 1½ ml of a 15% glycerin solution. The pericardia were frozen at -183°C and stored at -25°C for 5 days. The tissue was then cultivated in Carrel dishes containing 2-2.5 ml of liquid phase (10% homoserum, 90% of No. 199 medium and 50 units/ml of penicillin solution) in a thermostat at 37°C. The most

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L 00971-66

ACCESSION NR: AR5015932

intensive growth of the tissue was observed on the third day. In the experiments with animals in replacing defective pericardia, diaphragms, and bronchial stumps, the frozen pericardia showed satisfactory plastic properties. N. S.

SUB CODE: IS

ENCL: 00

Card 2/2

MOROZOV, S.F.; PLOTNIKOV, V.I. (Gor'kiy)

Continuity of generalized solutions of variational problems.
Mat. sbor. 65 no.4:473-485 D '64. (MIRA 18:3)

PLOTNIKOV, V.I.

Coprecipitation of small amounts of selenium and zinc with metal hydroxides. Zhur. neorg. khim. 9 no.2:451-455 F'64.

(MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy gornometallurgicheskiy institut tsvetnykh metallov.

PLOTNIKOV, V.I.

Permeability of blood capillaries in Botkin's disease. Sbor.
rab.Sverd.med.inst. no.32:94-97 '61. (MIRA 16:2)

1. Kafedra infektsionnykh bolezney (zav. kafedroy dotsent
A.I.Kortev) Sverdlovskogo meditsinskogo instituta.

(~~CAPILLARIES~~ PERMEABILITY)
(HEPATITIS, INFECTIOUS)

PLOTNIKOV, V.I., assistant

Change in the ballistocardiogram in Botkin's disease. Sbor.rab.
Sverd.med.inst. no.32:91-94 '61. (MIRA 16:2)

1. Iz kafedry infektsionnykh bolezney (zav. kafedroy - dotsent
A.I.Kortev) Sverdlovskogo meditsinskogo instituta.
(HEPATITIS, INFECTIOUS) (BALLISTOCARDIOGRAPHY)

S/137/63/000/002/034/034
A006/A101

AUTHORS: Plotnikov, V. I., Gorokhvodatskaya, R. I., Tsyb, P. P.
TITLE: Co-precipitation of indium with sulfides of some metals in sulfide-alkaline media
PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1963, 15, abstract 2K84 ("Sb. tr. Vses. n.-i. gornometallurg. in-t tsvetn. met.", 1962, no. 7, 289 - 295)

TEXT: To a solution containing In chlorides and the solution of another test metal, an excess of the Na_2S solution was added and filled up with water up to 100 ml. The mixture was stirred at a speed of 250 rpm, the precipitate was separated by centrifuging. The amount of In remaining in the solid phase was calculated from the radioactive aliquot portion of the solution. An In^{114} radioisotope was used. It was established that in the Na_2S solution at a concentration as high as 1 n. and more, In is fully transferred into the solution. In the presence of Cu, Cd and Zn, considerable co-precipitation of In with sulfides of these metals takes place. If the Zn content exceeds the In content, the latter

Card 1/2

Co-precipitation of indium with...

S/137/63/000/002/034/034
A006/A101

is fully precipitated. A compound of composition $\text{In}_2\text{S}_3 \cdot 4\text{ZnS}$ is formed. With higher In concentration in the solution, the solubility of Cu and Cd sulfides in the Na_2S solution increases. In the joint presence of Fe and In in the solution, full Fe precipitation takes place if Na_2S solution is added, and In remains in the solution. This can be used for the separation of Fe and In. Sn as well as In do not co-precipitate with Fe_2S_3 . Experiments were made on the precipitation of Sn with ZnS. It is shown that in the presence of ZnS, Sn and In can not be separated with the aid of Na_2S .

N. Gertseva

[Abstracter's note: Complete translation]

Card 2/2

S/039/62/057/003/001/002
B112/B104

AUTHORS: Morozov, S. F., and Plotnikov, V. I. (Gor'kiy)

TITLE: Necessary and sufficient conditions for continuity and semi-continuity of functionals in the calculus of variations

PERIODICAL: Matematicheskii sbornik, v. 57 (99), no. 3, 1962, 265 - 280

TEXT: Functionals of the form $(\vec{v}, \vec{w}, G, F) = \int_G F(\vec{x}, \vec{v}(\vec{x}), \vec{w}(\vec{x})) d\Omega$ ($\vec{x} \in G$, $\vec{v} \in R^1$, $\vec{w} \in R^m$) are considered. Linear (convex) dependence of F on $\vec{w}$ is shown to be necessary and sufficient for the continuity (semicontinuity) of the functional $(\vec{v}, \vec{w}, G, F)$ in the sense of strong convergence of $\vec{v}(\vec{x}) \in C$ and slight convergence of $\vec{w}(\vec{x}) \in L_p$. ✓

SUBMITTED: May 30, 1960

Card 1/1

PLOTNIKOV, V.I.

Coprecipitation of selenium and tellurium with metal hydroxides.
Zhur. neorg. khim. 5 no.5:731-737 Mr '60. (MIRA 14:6)

1. Vsesoyuznyy gorno-metallurgicheskiy nauchno-issledovatel'skiy
institut tsvetnykh metallov.
(Selenium) (Tellurium)

PLOTNIKOV, V.I. (Dzerzhinsk)

Semicontinuity of functionals in the calculus of variations. Mat.
sbor. 52 no. 3:799-810 W '60. (MIRA 13:12)
(Calculus of variations)

PLOTNIKOV V.I.

20-5-8/48

AUTHOR:

PLOTNIKOV V.I.

TITLE:

On the Differentiability of the Solutions of Variation Problems for Non-Parameter Representation (O differentsirnemosti resheniy variatsionnykh zadach v neparametricheskoy forme)

PERIODICAL:

Doklady Akad.Nauk SSSR, 1957, Vol.116, .Nr.5, pp.746-749 (USSR)

ABSTRACT:

Let G be a bounded twodimensional domain with a uniformly regular boundary [Ref.7]. Let $F(x,y,z,p,q)$ be defined and continuous in G and for arbitrary z,p,q let it satisfy the conditions:

1. $F_{pp} F_{qq} - F_{pq}^2 > 0$, $F_{pp} > 0$ in G ; 2. for $\sqrt{p^2 + q^2} \equiv R \geq \Delta > 0$

there holds the decomposition $F \equiv f(x,y,z) \cdot F^{(1)}(p,q) + F^{(2)}(x,y,z,p,q)$, where $f > 0$, $F^{(1)}$ and $F^{(2)}$ are differentiable four times;

3. $F^{(1)}(p,q)$ is positive-homogeneous of degree $\alpha \geq 2$ in p,q and we have $F_{pp}^{(1)} F_{qq}^{(1)} - F_{pq}^{(1)2} \geq L > 0$ for $p^2 + q^2 = 1$, where L does not

depend on p,q ;

4. $\left| \frac{\partial^\beta F^{(2)}(x,y,z,p,q)}{\partial p^m \partial q^n \partial z^k \partial x^l \partial y^s} \right| \leq L_1 R^{\alpha - m - n}$, $m+n+k+l+s=\beta$, $\beta=0,1,2,3,4$,

Card 1/2

On the Differentiability of the Solutions of Variation Problems for Non-Parameter Representation 20-5-8/48

$$(x,y) \in G; \quad |z| < z_0; \quad L_1 = L_1(z_0) > 0; \quad \gamma > 0; \quad \sqrt{p^2 + q^2} \geq \Delta.$$

Theorem: Let A^2 be the class of functions continuous according to Tonelli with the finite Dirichlet integral $D(z) = \iint_G (zx^2 + zy^2) dx dy$.

Let $z_0(x,y) \in A^2$. Let the function F satisfy the conditions 1.-4. and let it imply a minimum of the integral

$$\iint_G F(x,y,z,p,q) dx dy, \quad p = zx, \quad q = zy$$

for given values on the boundary of G . Let the solution $z_0(x,y)$ be unique in the small. Then $z_0(x,y)$ in every domain $G_1, \bar{G}_1 \subset G$, satisfies the Lipschitz condition and consequently: if $F \in C^{(2)}$ (analytical), then also $z_0(x,y) \in C^{(2)}$ (analytical) in G_1 . Six Soviet and 4 foreign references are quoted.

Card 2/2

PRESENTED: By I.G. Petrovskiy, Academician, April 26, 1957
SUBMITTED: December 21, 1956
AVAILABLE: Library of Congress

PLOTHIKOV, V.I. Cand Phys-Math Sci -- (diss) "On ~~the~~ differentiation of solutions of regular problems of variation calculation in ~~the~~ non-parametric form." Gor'kiy, 1958. 7 pp (Gor'kiy State U im N.I.Lobachevskiy. Chair of Math Analysis). 150 copies (KL, 43-58, 114)

- 6 -

AUTHOR: Plotnikov, V.I.

SOV/42-13-5-7/15

TITLE: Generalized-Saddle-Shaped Functions (Obobshchenno-sedlocbraznyye funktsii)

PERIODICAL: Uspekhi matematicheskikh nauk, 1958, Vol 13, Nr 5, pp 191-196 (USSR)

ABSTRACT: Let G be a two-dimensional domain. A continuous function $z(x,y)$, $(x,y) \in G$ is called R -generalized-saddle-shaped ($R > 0$) if for every domain $D \subset G$ and arbitrary a and b , $a^2 + b^2 \geq R^2$, the function $z(x,y) - ax - by$ reaches its maximal and its minimal value on the boundary of D .

The author proves the following generalization of a lemma due to Lebesgue-Radó: Let $z(x,y)$ be an R -generalized-saddle-shaped function defined in the circle $K: x^2 + y^2 \leq 1$ and satisfying the Lipschitz condition with the constant L on the boundary of K .

Then in every circle $K_\delta: x^2 + y^2 \leq \delta^2 < 1$, $z(x,y)$ satisfies the Lipschitz condition with a constant L_δ depending only on L, δ and R .

There are 3 references, 2 of which are German, and 1 French.

SUBMITTED: February 26, 1957

Card 1/1

16(1)

AUTHOR:

Plotnikov, V.I. (Dzerzhinsk)

SOV/39-47-3-4/4

TITLE:

On the Differentiability of the Solutions of Regular Variational Problems in Nonparametric Form (O differentsiruyemosti resheniy regul'yarnykh variatsionnykh zadach v neparametricheskoy forme)

PERIODICAL:

Matematicheskii sbornik, 1959, Vol 47, Nr 3, pp 355-396 (USSR)

ABSTRACT:

Let the minimum of the integral $\int_G F(x,y,z,p,q) dx dy$ be sought. When does the absolutely continuous solution of such a regular problem satisfy the Lipschitz condition? Fundamental theorem: Let $F(x,y,z,p,q)$ together with its five first derivatives be defined and continuous in the bounded two-dimensional domain $\bar{G}$. Let $F_{pp} > 0$, $F_{pp} \cdot F_{qq} - F_{pq}^2 > 0$. For all $(x,y) \in \bar{G}$ and arbitrary z,p,q let $F(x,y,z,p,q) = f(x,y,z)F^{(1)}(p,q) + F^{(2)}(x,y,z,p,q)$. Let $f(x,y,z) > 0$ be in $\bar{G}$. Let $F^{(1)}(p,q)$ be homogeneous of the order $\alpha \geq 2$; $F_{pp}^{(1)} \cdot F_{qq}^{(1)} - (F_{pq}^{(1)})^2 > 0$.

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$p^2 + q^2 = 1$. Let

$$\left| \frac{\partial^B F^{(2)}(x, y, z, p, q)}{\partial p^m \partial q^n \partial x^r \partial y^s \partial z^t} \right| \leq L(\sqrt{p^2 + q^2})^{\alpha - \gamma - m - n} \text{ for } \sqrt{p^2 + q^2} > \Delta > 0,$$

where $m+n+r+s+t = B$, $B = 0, 1, \dots, 5$, $(x, y) \in G$, $|z| \leq z_0$.

$L = L(z_0)$, $\gamma > 0$, $\Delta > 0$. Let $z_0(x, y)$ be a locally unique solution of the posed variational problem with fixed boundary, where $\int_G F(x, y, z_0, z_{0x}, z_{0y}) dx dy < +\infty$. Let z_0 be

continuous in $\bar{G}$; $\int_G \left(|z_{0x}|^\alpha + |z_{0y}|^\alpha \right) dx dy < +\infty$, $\alpha \geq 1$;

$z_0(x, y_0)$ is assumed to be linearly absolutely continuous in x on each interval of the straight line $y = y_0$ through G for almost all y_0 (the same property also on straight lines

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$x = x_0$). Under these assumptions $z_0(x, y)$ belongs to the class C^3 ; if F is analytic, then $z_0(x, y)$ is analytic too.

The proof of the theorem is based on the construction of a sequence F_n approximating the function F , where the F_n for

$p^2 + q^2 \geq R_n^2$, $R_n \rightarrow \infty$ do not depend on x, y, z . Then the author

considers the corresponding solutions $z_n(x, y)$ which satisfy a

Lipschitz condition independent of n and which approximate the solution $z(x, y)$. A result of A.G. Sigalov [Ref 67] is used.

The introduction of so-called generalized saddle-shaped solutions is of essential importance. - There are 18 references, 9 of which are Soviet, 4 American, 2 Italian, 1 German, 1 French, and 1 Austrian.

SUBMITTED: June 22, 1957

Card 3/3

USCOMM-DC-60,821

85225

16.4900

S/039/60/052/003/002/007
C 111/ C 333

AUTHOR: Plotnikov, V. I. (Dzerzhinsk)

TITLE: On the Semicontinuity of the Functionals of the Calculus
of Variations

PERIODICAL: Matematicheskii sbornik, 1960, Vol.52, No.3, pp.799-810

TEXT: The author gives a new proof of an extended formulation of the semicontinuity theorem of V. J. Kazimirov (Ref.5).

Theorem on the semicontinuity from below. Let: 1.) $\vec{v}_n(\vec{x})$ ($\vec{x} \in G$, where $G \subset R^k$ is a bounded domain) be a sequence of finite and measurable vector functions ($\vec{v}_n(\vec{x}) \equiv \{v_{n1}(\vec{x}), v_{n2}(\vec{x}), \dots, v_{ne}(\vec{x})\}$) which converges in measure in G to a measurable and finite vector function $\vec{v}_0(\vec{x})$, $\vec{x} \in G$.

2.) $\vec{w}_n(\vec{x})$, $\vec{x} \in G$ be a sequence of measurable vector functions

$\vec{w}_n(\vec{x}) \equiv \{w_{n1}(\vec{x}), w_{n2}(\vec{x}), \dots, w_{nm}(\vec{x})\}$, for which

$$\int_G \|\vec{w}_n(\vec{x})\| d\Omega < M,$$

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where M is positive and independent of n , and which possesses the
following property: for an arbitrary closed set $F \subset G$ it is

$$\sum_{j=1}^m \left| \int_F (w_{nj}(\vec{x}) - w_{oj}(\vec{x})) d\Omega \right| \rightarrow 0 \text{ for } n \rightarrow \infty,$$

where $\vec{w}_o(\vec{x})$, $\vec{x} \in G$ is a measurable vector function.¹⁰

3.) $F(\vec{x}, \vec{v}, \vec{w})$, $\vec{x} \in G \subset R^k$, $\vec{v} \in R^l$, $\vec{w} \in R^m$ be a function with
the properties:

a.) F and $F_{w_j} = \frac{\partial F}{\partial w_j}$ are continuous everywhere in the domain of
definition in all arguments,

b.) $F \geq 0$ everywhere,

c.) $\mathcal{E}(\vec{x}, \vec{v}, \vec{w}, \vec{\bar{w}}) \equiv F(\vec{x}, \vec{v}, \vec{w}) - F(\vec{x}, \vec{v}, \vec{\bar{w}}) - \sum_{j=1}^m \frac{\partial F}{\partial w_j} (w_j - \bar{w}_j) \geq 0$
for all $\vec{x} \in G$, $\vec{v} \in R^l$, $\vec{w}, \vec{\bar{w}} \in R^m$.

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ACC NR: AP7012398

SOURCE CODE: UR/0039/66/071/004/0586/0597

AUTHOR: Morozov, S. F. (Gor'kiy); Plotnikov, V. I. (Gor'kiy)

ORG: none

TITLE: Properties of holder continuity of generalized solutions of multivariate variational problems

SOURCE: Matematicheskii sbornik, v. 71, no. 4, 1966, 586-597

TOPIC TAGS: variational problem, continuous function

SUB CODE: 12

ABSTRACT: A theorem is proven for the Hölder continuity of generalized solutions of the variational problem $\inf I(u) = \inf \int_0^1 F(x, u, u_x) dx$

for the condition $m_1 p^m - k_1 \leq F(x, u, p_k) \leq m_2 p^m + k_2$, where

$m_1 > 0, m_2 > 0, k_1 > 0, k_2 > 0$ are constants; further, $n-1 < m \leq n$. No

suppositions are made regarding differentiability and the consistency of the orders of increase of the integrand F .

Orig. art. has: 34 formulas. [JPRS: 40,423]

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UDC: 519.3
0932 1321

ACC NR: AP6032273

SOURCE CODE: UR/0020/66/170/002/0290/0293

AUTHOR: Plotnikov, V. I. ; Pontryagin, L. S. (Academician)

ORG: Gor'kiy State University im. N. I. Lobachevskiy (Gor'kovskiy gosuniversitet)

TITLE: On a problem of the optimal control of steady-state systems with distributed parameters

SOURCE: AN SSSR. Doklady, v. 170, no. 2, 1966, 290-293

TOPIC TAGS: optimal control, linear differential equation, existence theorem, uniqueness theorem

ABSTRACT: The article presents several new existence, switching, and uniqueness theorems of optimal processes described by n-variate linear differential equations of the parabolic type, for the relatively uninvestigated case of systems with distributed parameters. The following optimal control problem is considered: find among all the controls $\vec{\mu}(t) \in D$ a control $\vec{\mu}_0(t) \in D$ which satisfies the functional equality $I_1(\mu_0) = \inf_{\vec{\mu} \in D} I_1(\vec{\mu})$ or $I_2(\mu_0) = \inf_{\vec{\mu} \in D} I_2(\vec{\mu})$

where $0 \leq t \leq T$; T is fixed. For the case of linear controls the following existence theorem

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ACC NR: AP6032273

is proposed: If $g(p, \vec{\mu}) = \sum_{j=1}^n g_j(p) \mu_j$, where $g_j(p)$, $p \in \Sigma$ are bounded measurable functions (Σ is the piecewise-smooth boundary of the n-variate bounded region), if M is the control region -- a convex set of permissible controls forming the functional class D -- and if there exists at least one control $\vec{\mu}(t) \in D$ for which $I_1(\mu) < +\infty$ (or $I_2(\mu) < D$), then there also exists an optimal control realizing $\inf_{\mu \in D} I_1(\mu)$ (or $\inf_{\mu \in D} I_2(\mu)$). Further, the necessary optimality criterion is formulated: If $\mu_0(t)$ optimal, then

$$\inf_{\mu \in D} \sum_{j=1}^n \Phi_j(\tau) \mu_j = \sum_{j=1}^n \Phi_j(\tau) \mu_{0j}(\tau) \quad (1)$$

and on this basis, switching and uniqueness theorems characterizing the properties of the optimal control $\mu_0(t) \in D$ are proved. Orig. art. has: 6 formulas.

SUB CODE: 12, 09/ SUBM DATE: 24Dec65/ ORIG REF: 005

Cord 2/2

PLOTNIKOV, V.I.; USATOVA, L.P.

Coprecipitation of small amount of arsenic with metal hydroxides.
Zhur.anal.khim. 19 no.10:1183-1187 '64. (MIRA 17:12)

1. All-Union Scientific Research Mining-Metallurgical Institute of
Non-Ferrous Metals, Ust-Kamenogorsk.

ACCESSION NR: AP4012449

S/0078/64/009/002/0451/0455

AUTHOR: Plotnikov, V.I.

TITLE: Coprecipitation of small amounts of selenium and zinc with metal hydroxides

SOURCE: Zhurnal neorg. khim., v. 9, no. 2, 1964, 451-455

TOPIC TAGS: selenium coprecipitation; zinc coprecipitation, selenium adsorption, zinc adsorption, metal selenite, metal hydroxide coprecipitation, coprecipitation mechanism

ABSTRACT: The adsorption isotherms of selenium (IV) on iron hydroxides were constructed. It is suggested that the mechanism of coprecipitation of selenium with metal hydroxides is the formation of difficultly soluble metal selenites which are entrained in the precipitate with the metal hydroxide which acts as the carrier. The coprecipitation of zinc with different metals and its dependence on pH of the solution was investigated: coprecipitation of zinc increases in the following series: $\text{Be}(\text{OH})_2$ - $\text{In}(\text{OH})_3$ - $\text{Al}(\text{OH})_3$ -

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$\text{Fe}(\text{OH})_3$ - $\text{Zr}(\text{OH})_4$ - $\text{Ti}(\text{OH})_4$ - $\text{Cr}(\text{OH})_3$. Coprecipitation is optimum in all cases at a pH of 7.5-8, coprecipitation with $\text{Be}(\text{OH})_2$ being only about 10% and approaching 100% with $\text{Cr}(\text{OH})_3$. Orig. art. has: 4 figures, 1 table and 1 equation.

ASSOCIATION: Vsesoyuzniy nauchno-issledovatel'skiy gorno-metallurgicheskiy institut tsvetnykh metallov (All Union Scientific Research Mining Metallurgical Institute of Nonferrous Metals)

SUBMITTED: 21Jan63

DATE ACQ: 26Feb64

ENCL: 00

SUB CODE: CH

NO REF SOV: 009

OTHER: 001

Card 2/2

MOROZOV, S.F.; PLOTNIKOV V.I. (Gor'kiy)

Necessary and sufficient conditions for continuity and
semicontinuity of functionals in the calculus of variations.
Mat.sbor. 57 no.3:265-280 J1 '62. (MIRA 15:8)
(Calculus of variations)